

Bamboo Propagation



TAD: Bamboo Natural Building
7 February 2017

Why Propagate Bamboo?

- ▶ Name some uses you saw on the farm during your tour this morning...
- ▶ To be a useful resource you have to have a lot of it...

Basics of Propagation (A Brief Look at Botany)

Sexual Reproduction

- ▶ Reproduction by seed by flowering plants (angiosperms)
- ▶ Genetic diversity

Asexual Reproduction

- ▶ Reproduction by means other than sexual reproduction
- ▶ Includes: Division, cuttings, grafting, tissue culture
- ▶ Clonal/genetic continuity

Observations About Grasses

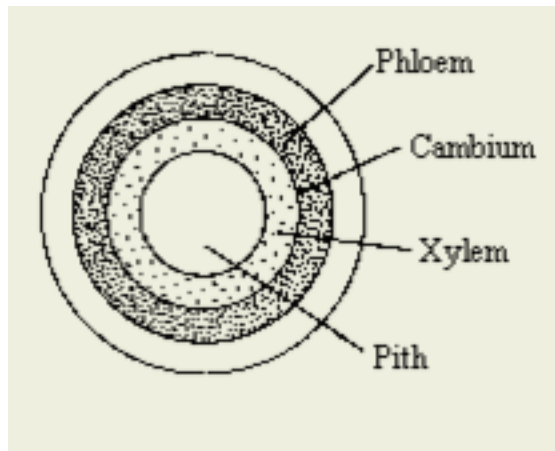
(Bamboo is in the grass family - Poacea)

- ▶ Can you name some observations about grass growth, structure, and reproduction?
- ▶ Which apply to Bamboo?
- ▶ Hints for propagation?

Basics of Propagation (A Brief Look at Botany)

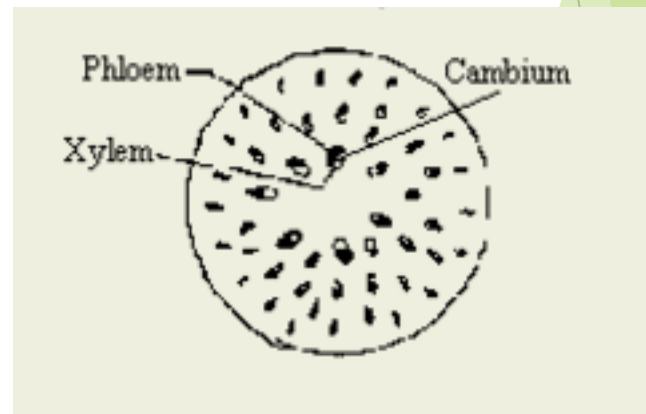
Dicot

- ▶ 2 cotyledons
- ▶ Tap root
- ▶ Open vascular system



Monocot

- ▶ 1 cotyledon
- ▶ Fibrous root system
- ▶ Closed vascular bundles



The Flowering Cycle Phenomenon

▶ Annual Flowering Cycle:

- ▶ “Bamboos following this pattern flower every year, don’t die, but rarely produce a viable seed” - Cusack

▶ Sporadic Flowering Cycle:

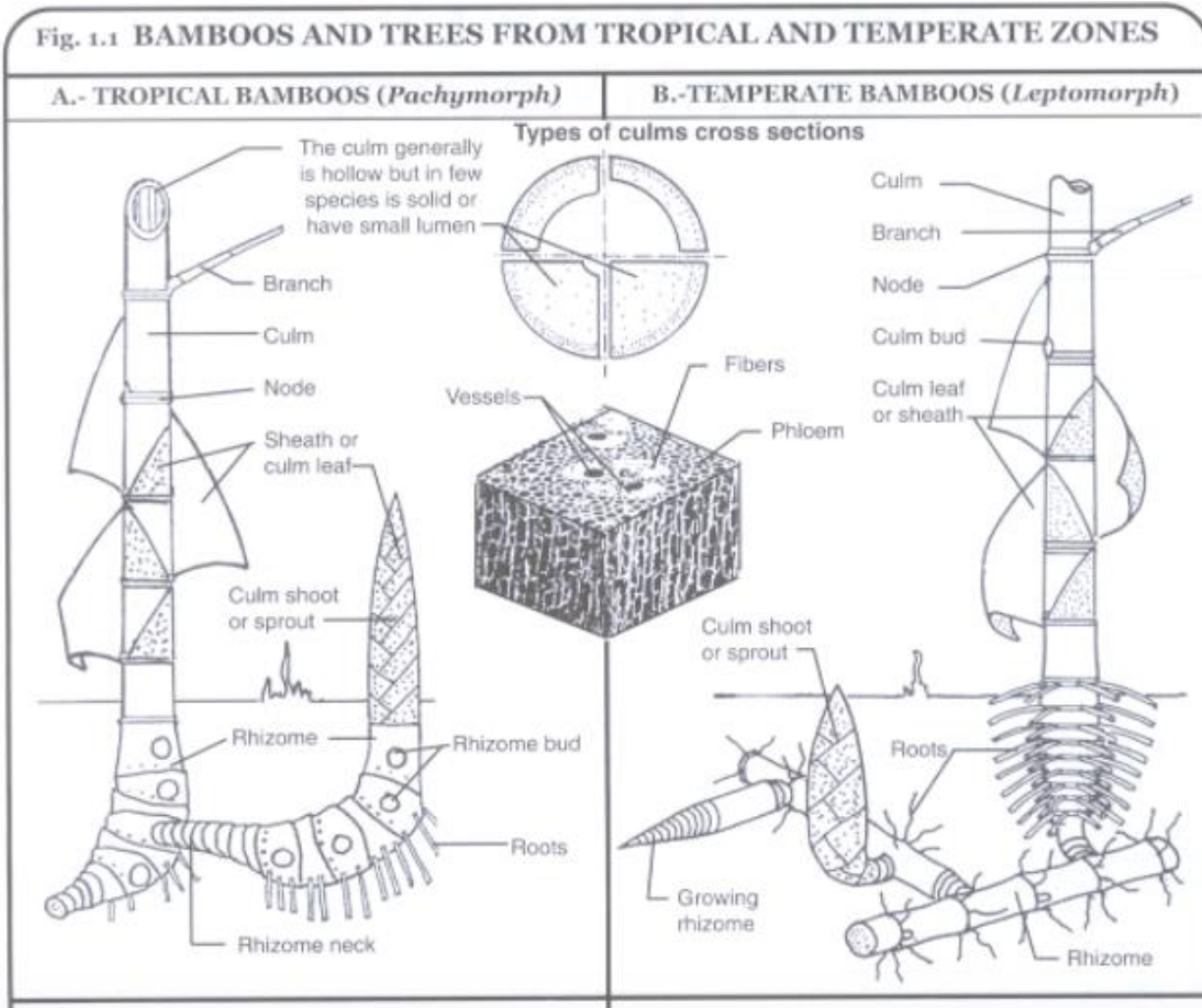
- ▶ “These bamboos flower occasionally, suffer temporarily from stress but don’t die, and produce very little viable seed” - Cusack

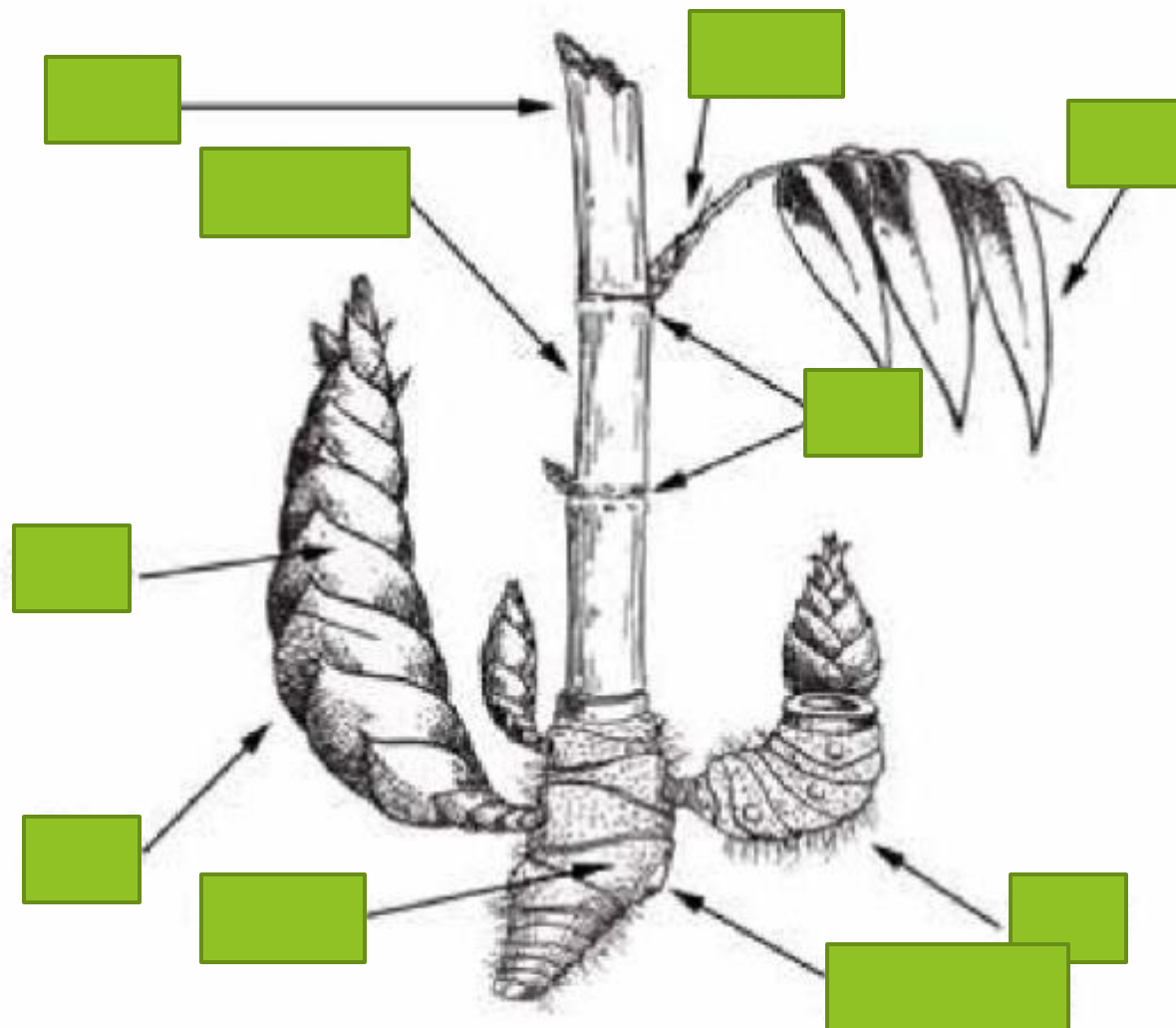
▶ Gregarious Flowering Cycle:

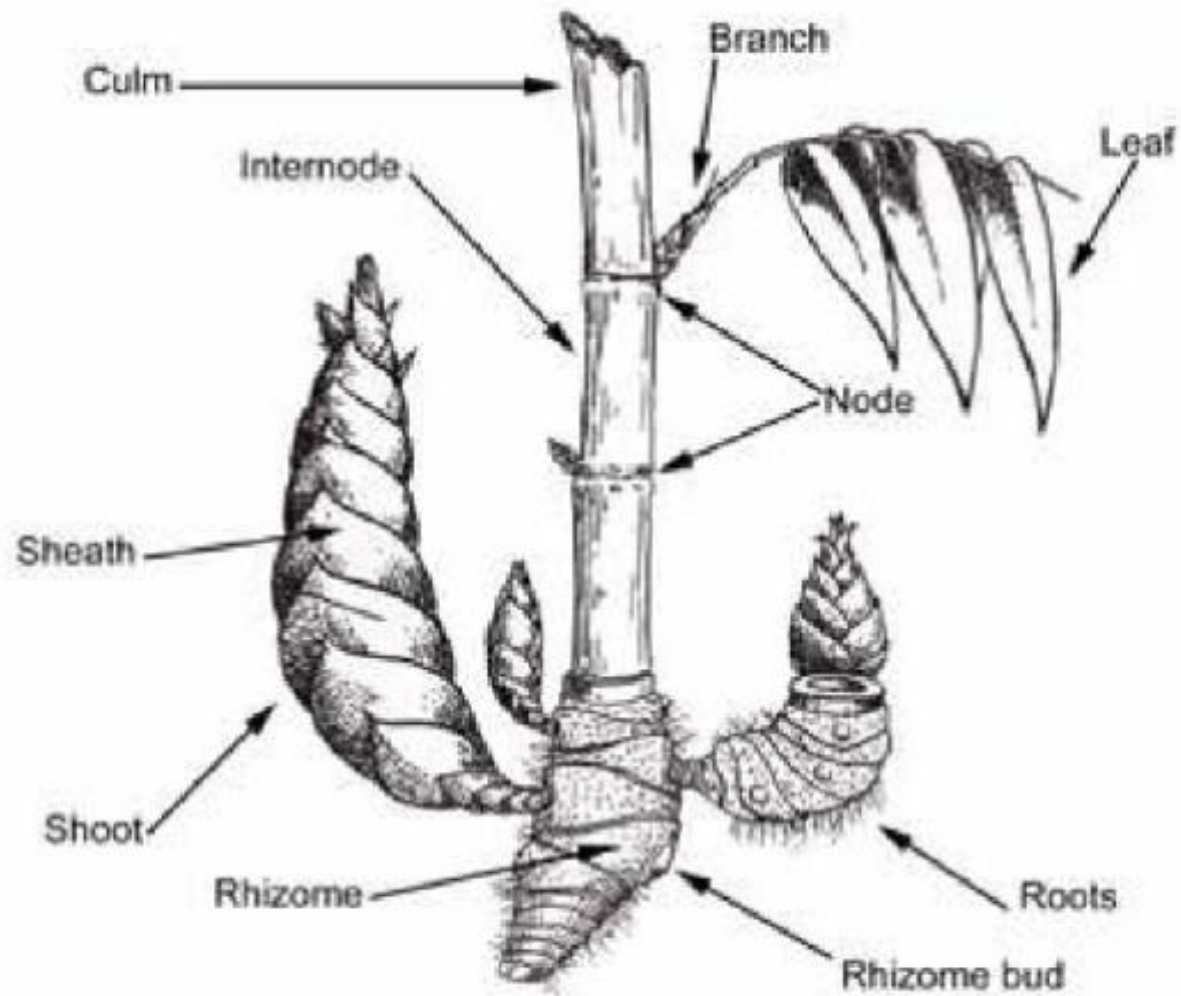
- ▶ Bamboos representing this pattern produce masses of viable seed and mostly die of exhaustion in the process” - Cusack



Bamboo Growth, Structure, and Reproduction







Bamboo Propagation



- ▶ More Available Methods
 - ▶ Cuttings
 - ▶ Culm
 - ▶ Buried
 - ▶ Rooting container
 - ▶ Branch
 - ▶ Rhizome Division
 - ▶ From a container
 - ▶ Offset
- ▶ Less Available Methods
 - ▶ Seed
 - ▶ Tissue Culture
 - ▶ Airlayers

Buried Culms

- ▶ Select a culm that has good branching and is 2 to 3 years old
- ▶ After harvesting, trim it to 10 to 15 feet long
- ▶ Prune branches to 1 or two nodes





- ▶ Select a place that have fertile, moist, semi-shaded place
- ▶ Dig a trench that is deep enough to bury the culm, however it is ok for the branches to stick above ground
- ▶ Bury culm, ensuring good soil contact around nodes



- ▶ Leave culm buried for 2-3 months in hot and humid conditions
- ▶ Water to keep the soil moist
- ▶ Unbury and separate the rooted branches at the nodes

or

- ▶ Allow to remain and grow into a living fence with new plants spaced at every node



Culm Cuttings

- ▶ Select a culm that is 2 to 3 years old
- ▶ Cut a section 8 to 12 inches long that includes 1 or 2 nodes
- ▶ Prune the branches to allow cutting to fit into pot
- ▶ Pot up in a soil medium that allows for good drainage (sand and peat, perlite and peat, etc.)
- ▶ Pack soil in well for good contact, especially around the node



- ▶ Label the pot or cutting with the name and date



- ▶ Water the soil thoroughly
- ▶ Fill the internode with water



- ▶ Place in a warm, humid place to root
- ▶ Remove in 2-3 months



- ▶ Ideally cuttings should be done at the beginning of the rainy season when moisture and humidity are highest



- ▶ If rooting out of season a humidity chamber can be built out of scrape wood, arched rods, plastic, and a heat mat



- ▶ The pots, with holes in the base, sit in water that provides the moisture to create humidity and keep the cuttings moist



References

- ▶ Cusack, Victor. 1999. Bamboo World: The Growing and Use of Clumping Bamboos. Sydney: Kangaroo Press.
- ▶ Lopez, Oscar Hidalgo. 2003. Bamboo: The Gift of the Gods. Colombia: D'VINNI LTDA.
- ▶ <http://www.bamboovillagehawaii.org/report.htm>
- ▶ http://www.inbar.int/publication/txt/INBAR_Technical_Report_No03.htm
- ▶ <http://www.eabp.org.et/Publications/Guidelines/Guidelines%20for%20Growing%20Bamboo070306.pdf>
- ▶ <http://bambootech.org/files/PRESERVATION%20BOOK.pdf>
- ▶ http://www.inbar.int/wp-content/uploads/downloads/2012/09/inbar_technical_report_no06.pdf
- ▶ <http://www.eabp.org.et/Publications/Guidelines/Guidelines%20for%20Growing%20Bamboo070306.pdf>
- ▶ <http://bamboopropagation.info/a-new-bamboo-has-set-flower/>